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This paper examines the historical development of the modern public museum based on late nineteenth century and early twentieth century examples. The types of knowledge structures apparent in museums historically from the Renaissance to the modern era are discussed. The issues that face public museums in regards to presentation of knowledge and objects, as well as community involvement, are still pertinent issues. Virtual museums will be facing these same issues, and must redefine what it means to be a museum much as earlier physical models had to redefine themselves.

Headings:

Museums.

Museums -- History

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AN EXAMINATION OF HISTORICAL TRENDS IN MUSEUMS FOR APPLICATION TO THE ISSUES AND DEFINITION OF VIRTUAL MUSEUMS

by
Patricia L. Walker

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Approved by:

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Advisor

An issue facing many cultural institutions in the modern day is the transition between physical presence and virtual presence. Is the virtual presence merely an extension of the physical one or an entirely different entity? How is communication effected in either of these formats?

This paper will examine the history of the public museum, the contexts of epistemes, and the definitions provided for virtual museums. By examining these areas, an understanding of the questions needing to be answered can be initiated.

Defining the "Virtual Museum"

Attempts to define "virtual museum" have been rampant in the literature for many years now. Terms such as electronic museum, digital museum, Web museum, and online museum have all been used (Schweibenz 1998). All of the definitions do agree, however, that a virtual museum will provide online access to digitized materials (Andrews 1998, 24 and Schweibenz 1998).

According to Andrews definition, the virtual museum "lends itself to transcending traditional methods of communicating with the user," (Andrews 1998, 24). This aspect is very important because, by opening up new communication methods, the virtual museum will have the opportunity to provide new ways of knowing. It will, though, limit knowing in the physical environment. It remains to be seen how these new methods of communication will affect the current knowledge structure and the purpose and definition of museums in general. To understand the issues involved with knowledge structures and

defining museums, it is first necessary to understand how these terms are defined and issues addressed for the traditional "physical" museum.

Understanding the Physical Museum

Why are museums created? What are the social and cultural contexts that generate museums? What types of knowledge structures do museums create or legitimize? What roles do communities and cultural beliefs have in shaping presentation in museums? Does the interpretive function of museums eliminate possible avenues of discovery? These questions are essential to a critical analysis of museums in society, and are necessary to understand how newer forms of museums, like the "virtual museum", can be created that will serve as valuable forums for discussion that serve individuals and communities.

> There is no essential museum. The museum is not a pre-constituted entity that is produced in the same way at all times. No 'direct ancestors' . . ., or 'fundamental role' . . . can be identified. Identities, targets, functions, and subject positions are variable and discontinuous. Not only is there no essential identity for museums, . . .but such identities as are constituted are subject to constant change as the play of dominations shifts and new relations of advantage and disadvantage emerge (Hooper-Greenhill 1992, 191).

As cultural institutions grow and adapt to their present and future, they continually have to redefine and reaffirm their purposes and presentations. To do this, institutions have to examine and evaluate their histories, not only as individual entities but also as components of the museum culture. As a piece of this community, each institution presents valuable individual viewpoints that enable the field's boundaries to be, as of necessity, redefined. This redefinition is vital, for as one author notes:

> the lack of a flexible model for museums leads to severe problems in accommodating and working with the new elements that are imposed upon the

> existing field. Without this ability to adapt, to find new ways of being museums, and new ways of recruiting support, museums are being closed down, collections sold, and staff dismissed (Hooper-Greenhill 1992, 8).

One new element for museums is the advent of the internet, and its affect on an institution's definition of community, objects, and presentation. The internet aids the constant redefinition of museums by creating internal and external dialogues and changes. These conversations present shifts in viewpoint and power that are essential to understand because of their impact on how museums are defined, perceived and used.

If museum professionals can understand what causes change, and begin to predict those changes, then museums as a whole will benefit.

> If we can . . . analyse, understand, and evaluate the reasons why museums are as they are now, through analyzing other ways in which they have been in the past, then perhaps new horizons open and new possibilities for radical action emerge. (Hooper-Greenhill 1992, 9-10)

"New horizons" and "radical action" both open up the paths of communication between staff and patrons. It is this type of communication that is one purpose of museums.

This paper seeks to examine the history of museums to discover what compatible ideas from physical museums may be applied to virtual museums. A key issue in this discussion will be the definition and purpose of museums. A look at the history of museums in general will set the framework for examining nineteenth and twentieth century museums in particular. After looking at historical, political, and cultural links within collections and museums, the paper will address change in knowledge structures and the affect that those changes had on museum presentation.

The observations made in this paper will be based upon various texts, historical and theoretical, which were selected according to their examination of the following criteria:

1. knowledge structures in museums
2. historical context of museums
3. communication methods in museums.

These texts were read with three basic questions in mind. First, how is the term museum defined? Second, how has knowledge and the portrayal of objects been shaped over time? Finally, are any of these ideas or concepts applicable to a virtual museum or even the basic electronic presentation of the museum and its collections?

Eilean Hooper-Greenhill's Museums and the Shaping of Knowledge

Among its several definitions, "knowledge" is:

1) The state or fact of knowing.
2) Familiarity, awareness, or understanding gained through experience or study.
3) The sum or range of what has been perceived, discovered, or learned.
4) Learning; erudition.
5) Specific information about something. (American Heritage Dictionary)

These definitions seem fairly straightforward; however, when applying them to the practices of knowledge institutions, they barely suffice. Why is this the case? Essentially, these definitions are insufficient because they offer no inkling of just how powerful knowledge can be or of what uses it can be put to by humans. Further, they provide no indication of how strong the transforming effect of just a little bit of knowledge is on an individual's perceptions and life. Nor is there any hint of the complexity of knowledge structures, or the elements that shape those structures. Yet it is these complexities that all types of museums must deal with at their most basic level for it has been noted that, "Knowledge is now well understood as the commodity that museums offer," (Hooper-Greenhill 1992, 2). Obviously, a more articulate understanding of "knowledge" would be useful.

In order to understand how complex these issues are, it is necessary to first understand the constituent elements that affect and shape knowledge structures. Eilean Hooper-Greenhill writes:

> what counts as knowing is largely dependent on specific elements, including cultural, social, political, scientific, and other elements. . . .These elements interrelate and work with or against each other in a state of constant flux, so that meaning is continually defined and redefined . . . . The elements themselves will also vary, as 'science' or 'culture' changes and is redefined." (Hooper-Greenhill 1992, 12)

Our ability to know is directly tied to changing forces that humanity still does not fully understand after centuries of study. Without structures, or an understanding of patterns, we cannot predict with surety any of the aforementioned elements for one culture, much less for all cultures. Further, the ratio of these interacting elements, one to the other, has changed greatly over the course of history; in fact, these elements have been in flux and need to be redefined as the overall knowledge structure has shifted.

With the unending melding and merging of culture, society, politics and science in mind, we must look at history to see what patterns may be present and when and why those patterns changed. As Hooper-Greenhill asks, "How has reason, truth, or knowledge been produced and how do people govern themselves and others by the limitations and specifics of particular forms?" (Hooper-Greenhill 1992, 9). This question raises more issues when applied to the internet. For example, how is knowledge presented on the internet, how is that presentation reflecting the current knowledge structure or changes in that structure, how does the internet affect the power structure, and how is an individual's image affected by presentations made by virtual museums?

Knowledge Structures

In Museums and the Shaping of Knowledge, Eilean Hooper-Greenhill examines Michel Foucault's works on epistemes and discusses how these viewpoints can inform our understanding of museums. Once we understand how the knowledge structure has changed, then we can begin to look at museums during that period and begin to understand how they were adapted in purpose to suit the new knowledge structure.

An episteme is defined by Foucault and Hooper-Greenhill as " 'something like a world-view' and that it is not a motionless figure, but is in constant oscillation as a series of articulations and shifts," (Hooper-Greenhill 1992, 164). Hooper-Greenhill continues on to discuss the three types of epistemes that Foucault noted: the Renaissance episteme, the classical episteme, and the modern episteme. My primary focus will be on the modern episteme; however, the first two must be discussed briefly, in order to understand several vital points in the history of museums.

Renaissance Episteme

According to Hooper-Greenhill, Foucault's description of the Renaissance episteme states that:

> Foucault describes the Renaissance *episteme* as plethoric, but poverty-stricken: limitless, because resemblance was never stable, but consisting of endless relationships. This was a knowledge which could and did proceed by the accumulations of configurations that were all dependent on each other. There was, therefore, no real substance, and no means of verification. Legend, stories, hearsay, and material things all offered possibilities for discovering likenesses and relationships. None could be discarded, as all were potentially 'true', (Hooper-Greenhill 1992, 15).

She further goes on to write that "Resemblance, sameness, links, and relationships are a basic structure of knowing. To know is to understand how the things of the world are the

same, however they may look," and that ". . . the endless task of interpretation is the basic structure of knowledge," (Hooper-Greenhill 1992, 14). Thus, when discussing the Medici Palace (considered to be one of the earliest antecedents of the museum in modern times) and its contents, Hooper-Greenhill took special note of accounts of Piero's examination of his collection by Antonio Filarete's, a contemporary of Piero de Medici,. She asks, "Is it significant that Filarete suggests that Piero's re-looking at his collection 'would again give him pleasure since a whole month had now passed . . .? Is Piero rereading the meaning of his jewels within a new astrological context?" (Hooper-Greenhill 1992, 66). This example illustrates the incessant reinterpretation that ran as a constant undercurrent in day-to-day life of the Renaissance person. The collection and its display served to bring wealth and position to the collector. Very likely, also, the accumulation of interpretations indicated a continual renewal of the right to power.

Classical Episteme

In contrast to the many-to-many relationships established by participants in the Renaissance knowledge structure, the classical viewpoint went to the other extreme and attempted to establish one-to-one relationships between objects and their relationships, which were considered to be anything of a physical nature. For example, a plant would be examined and placed in a taxonomy first by its kingdom then by phylum, and continuing on down through subspecies. Thus, an object could only be examined in that relationship. It suddenly became inappropriate to consider the folklore, traditions or symbolism that had previously imbued that object with information. Science became the only lens through which items could legitimately be examined. The essential point to

remember for the classical episteme is that people thought that knowledge was "definable and controllable," whereas the Renaissance episteme had viewed knowledge as infinite (Hooper-Greenhill 1992, 16).

Another aspect of the classical knowledge structure was its tendency towards classificatory tables that illustrated the one-to-one relationships that could then be ranked in some kind of order. Hooper-Greenhill describes the classical episteme in this way:

> The classical *episteme* set itself a more restricted project. Its founding structure was that of order, through measurement and the drawing-up of hierarchical series. The classificatory table emerged as the basic structure of knowledge. The activity of mind, knowing, was no longer to consist of drawing things together, but in setting things apart, in discriminating on the basis of difference, rather than in joining on the basis of similitude. (Hooper-Greenhill 1992, 15)

She also goes on to state that "Things could only be constituted as meaningful in one relation at any one time," (Hooper-Greenhill 1992, 163) which accounts for the attempt made by some scholars of the time to develop a universal language that would "not merely enable knowledge, it would in itself *be* knowledge," because the language would "clarify, once and for all, the relationships and qualities of the natural world. The actual composition of the 'words' used - the lines, shapes, and dots - would provide an accurate description of the thing it referred to," (Hooper-Greenhill 1992, 150). These scholars were attempting to establish relationships between words and things instead of between words and ideas. After all as Kenneth E. Boulding discusses in his book, The Image, language is a form of symbolic communication that expresses how humans perceive the world and objects around them.

There is no definite means of describing an object, with its myriad of characteristics, in one word. If this process did exist in this manner, then our ability to fully express ourselves would be greatly inhibited and any attempts at simile and

metaphor would be unthinkable because the object would only be known by that word and could not be compared to another concept based on other characteristics. One author wrote:

> The difficulties of expressing memories, ideas, and thoughts exactly in language, spoken or written, have long attracted the attention of thoughtful men and, in fact constitute the greatest single difficulty in the handing down of knowledge from generation to generation. There is no possibility of describing exactly in words a memory or even an object so that the language will convey the same impression to one who may read it that was in the mind of the writer. Approximation to exactness of expression is an art that can be attained only by a life long study and practice and the perfection of which is quite impossible (Pearce 1921, 4-5).

It is this inherent "fuzziness" in language that allows people to see different connections and perceptions. It is these differences that allow for human progress.

Modern Episteme

At first glance the modern episteme appears to be very similar, if not the same as, the Renaissance episteme. The purpose or desire of the modern episteme is described as wishing "to know why it is that things came to look as they do. Things . . . are understood as organic structures, with a variety of different levels of complexity, and a variety of different relationships to each other," (Hooper-Greenhill 1992, 17). The acknowledgment of these relationships is what, at first, gives the appearance of similarity to the Renaissance knowledge structure. It is not, however, the same mindset at all. The key to understanding the difference is the use of the term 'organic structure' whereas the Renaissance episteme was finding ways of equating any object to any other object and ended up with a hodgepodge instead of a structure.

Perhaps the best way of illustrating the differences between these epistemes is to describe them in terms of beads and beadwork. First, the world of objects consists of a

container of loose beads. In the Renaissance episteme a person would reach into that container and draw out an arbitrary handful of beads. The Renaissance mind would then seek to create equally arbitrary relationships among each of those beads, and them drop them back into the container to go through the entire process again. Next, comes the classical episteme. which reaches into that container and draws out a selection of beads. this selection is sorted, based first upon shape, then upon size, and finally by color. Another handful of beads is drawn out and it is also sorted into appropriate categories. Next, those beads are taken, starting first with the oval beads and proceeding down to the square beads, and strung , each group, onto an appropriate single strand of thread. Finally, comes the modern episteme which can be seen as a beadwork sampler. This sampler does not consist of a group of single strands, but rather consists of several groups of thread that weave together and bind various beads to each other. These beads form a picture, whose parts have individual symbolism that join to help create an entity with its own symbolism. Thus, the sampler illustrates the requisite traits of the modern episteme that Hooper-Greenhill describes as, "internal relations between elements whose totality forms a function" (Hooper-Greenhill 1992, 16-17)

This example also ties in with what Stephen Weil wrote of objects when he said, "We perceive them in a mesh of experience," (Weil 1990, 48). In this instance, our perceptions equate to the strings and objects equate to the beads. Further, our perceptions are based on our past experience, which helps to create the mesh that holds everything together. Therefore, we will not see everything in the same manner in which another person sees these things. This individuality of perception and relationships is why Weil also wrote, "We see things, as the anthropologist David Pilbeam has observed, not as they

are but 'as we are,' " (Weil 1990, 48). Therefore, we need to understand how 'we are' or how we perceive. In other words, how do we create our knowledge structure and how do we use this structure to filter information and objects. In addition, how do we compare across knowledge structures, are these structures applicable to certain cultures only, and do we have national knowledge structures?

The Image

Kenneth E. Boulding discusses subjective knowledge by using the term "image," because the term knowledge has connotations of validity or truth for the vast majority of people. This connotation does not allow the term to have the suppleness of meaning and subjectivity that Boulding requires for his discussion.

The important question that Boulding posits about subjective knowledge is "what determines the image?" (Boulding 1956, 5). He then continues on to point out that the image is shaped by or built from past experience (Boulding 1956, 5-6). Or as Mark Twain said, "A man who carries a cat by the tail learns something he can learn in no other way," (Lieberman 1983, 131). Thus, our past experience acts as a filter through which we look at the present. We analyze the present by our past experiences, and usually have stronger reactions towards those things that we analyze through the filter of our more memorable experiences.

Boulding next discusses how individuals begin to structure an image for themselves. He talks of how a child gradually begins to perceive themselves as an entity "in the midst of a world of objects," (Boulding 1956, 6). As relationships are established between people, their images "communicate" through verbal and nonverbal cues. Both images have the possibility of being altered towards closer agreement. This alteration in

the image is the meaning of the message or communication, as Boulding defines meaning.

Boulding's discussion of this meaning continues by pointing out first, that we receive messages from external and internal sources. His second point deals with the ability of humans to communicate, intentionally and unintentionally, forward across time. This aspect of the text examines the passage of history and stories through oral and written traditions. For example, we 'know' that Columbus sailed in 1492 and discovered the New World. How do we know this? We know this because someone from the fifteenth century, likely writing to a contemporary and not for posterity, wrote down the date and what happened. This information was then transmitted by the written word to our day and has become a part of our temporal image of the world around us. This example also serves to illustrate the importance of language, and how we use the symbolism inherent in language to establish a degree of commonality in images. This commonality is what allows us to have a knowledge structure for a culture that is generally applicable on the grand scale even if not always applicable or acceptable on the small scale of each and every individual's image. It is a quirky version of the majority rules dictum, or the more people who have similar images on something, the more accepted it is as a portion of the public image or commonality for the individuals.

"Human society is an edifice spun out of the tenuous web of conversation," (Boulding 1956, 45). Society can be defined as a common culture or a group of people with mutual interests and characteristic relationships. One of the most important activities of a society is "the transmission and protection of its public image," (Boulding 1956, 64). Adding to the complexity of this task, there is no direct means of transmitting

sensation or emotions except through symbolic means, which of course involves language (Boulding 1956, 65). Hooper-Greenhill makes a similar point: "Language relates to the activity of mind rather than materiality of nature," (Hooper-Greenhill 1992, 16). Museums aid in the transmitting of the public image by creating dialogue with the community and individuals. Through this communication, museums come to understand how objects are perceived and concepts are viewed. Thus, they can better communicate a community's image in its changeable entirety.

The History of Museums

Prior to the modern museum, there were collections held by monarchs, nobility, and, occasionally, men of science. These collections were not available for viewing to the majority of people. The museum, as we currently know it, has evolved to become a public museum. This particular incarnation of museums budded forth with Vivant Denon and the Louvre during the time of Napoleon Bonaparte and the French Revolution. This institution has progressed fitfully from that period into what we currently perceive as a museum today.

To understand the purpose of these museums, it is first necessary to understand, in general, the antecedents of museums. As briefly noted earlier in this text, many historians view the Medici Palace as the first European museum. We should not make the mistake, however of equating this example on any level to the generally perceived ideas of the purpose of a modern public museum. The Medici Palace would meet the current standards of a privately held collection viewable to national leaders and renowned scholars by invitation of the owner.

What was the purpose of the Medici collection? Hooper-Greenhill states:

> In contrast to the public spaces, such as churches, where patronage and its resulting display had been communal and open and accessible to all, this new form of space was private, and access to it was controlled. Seeing, the skill of the exercise of the gaze, which had previously been a freedom that anyone could enjoy, instead now became a privilege, meted out by the prince, the owner of the palace. (Hooper-Greenhill 1992, 72)

She also writes:

> But in the mid-fifteenth century, the constitution of an encyclopedic world view was *not* the aim of the 'collector'. The Medici Palace did not attempt to present a world picture through its collections and its spaces. However, it did seek to develop subject positions that would enable the Medici to become, and to be seen to become, more powerful, more knowledgeable, and more wealthy than their fellow citizens. (Hooper-Greenhill 1992, 45-46)

The collections primary purpose, therefore, was to illuminate, accentuate, and further increase the power, wealth, and knowledge of Cosimo de Medici and his descendants.

Cosimo de Medici, whether consciously or unconsciously, chose this method of accruing these traits because 'The structure, although based on feudal characteristics was new in that the 'prince' was not a hereditary ruler, and he therefore had to use persuasive power, symbol, and propaganda to establish his position of superiority," (Hooper-Greenhill 1992, 71). He could use this structure because he had accumulated enough wealth to do so. This wealth was based upon the mercantile growth that had begun with the opening of trade routes with the east. These mercantile practices then became "enmeshed with and fostered new cultural practices," (Hooper-Greenhill 1992, 61). these cultural practices included the advent of collecting outside of the power structure of the God-given ruler. Once collections began outside of the aristocratic power structure,

> new relations of advantage through the construction, control, and dissemination of knowledge. This new modality of power required on the one hand that the collections should be openly available for study, and on the other created the

> subject positions of expert/owner and student/visitor (Hooper-Greenhill 1992, 66).

Further, with this change, absolute control over the construction of knowledge was removed from the hands of a few. In addition, new information was traveling along the trade routes about the classical world. It is this information which created the necessity of redefining the Renaissance episteme into that of the classical episteme.

The Museum during the Classical Episteme

The classical episteme in museums is best exemplified by herbaria, zoological collections, and botanical gardens that arose as a result of the desire to impose hierarchical order. That is not to say that these things did not exist within the Renaissance episteme; however, the organization of these collections was redefined.

Hooper-Greenhill expresses the change in this manner:

> Things which had been displayed together to demonstrate the variety and richness of the world would now be displayed apart, linked not to something dissimilar through hidden resemblances, but to something that had the same morphological features, that looked the same, and could be classed in the same family or species (Hooper-Greenhill 1992, 140).

This new knowledge structure was germinated within the English Civil War. Since war is often an unsettling time, questions get asked that might normally not be voiced. However, once voiced the question must be addressed. Because of the intellectual turmoil spawned, new authorities and opinions were sought. This process gave birth to entities like the Repository of the Royal Society in London (Hooper-Greenhill 1992, 145).

Perhaps the most interesting aspect of the classical knowledge structure was its almost exclusive reliance on the sense of sight. Taste, smell, hearing, and touch were

virtually excluded because they lacked the certitude associated with sight. After all, it was much easier to agree, for example, on four narrow leaves with a red bloom than it was to agree on how bitter a drop of sap tasted.

In the cabinets, as the collections of this time were known, items were divided into three categories. Naturalia and artificiala had both existed as categories before this period. During this time, these two categories were joined by curiosa (Hooper-Greenhill 1992, 144).

The Repository of the Royal Society illustrates the shift from the Renaissance to the classical. Further it shows the shift from private collecting to public collecting, albeit not for public 'consumption" as modern museum goers understand public. The founders of the society had to band together in order to afford equipment and accommodations. In this respect, they were public. In regards to the collection itself, they wrote that it was "for the most serious and diligent study of the most able Proficient in Natural Philosophy," and not for the "Divertisement, and Wonder, and Gazing, and like Pictures for Children to admire and be pleased with" (Hooper-Greenhill 1992, 148).

What were the objectives of the Royal Society? The group had three primary objectives. The key purpose of the society was to create a rational language that would aid objectivity. The two other purposes were the establishment of truth through replicable experiment and the creation of a comprehensive collection (Hooper-Greenhill 1992, 147). It is the final objective that is of interest here.

Hooper-Greenhill notes that the Royal Society was quite ambitious in their collecting aims. They desired to have a collection that would be, not just representative, but complete. This completeness would enable the members of the Royal Society to

construct a 'universal taxonomy' as well as a rational universal language (Hooper-Greenhill 1992, 148). Unfortunately, the nature of society at the time and the collecting policies of the Society prohibited their achieving this purpose.

Since part of the reason the royal Society had been founded was for financial reasons, it should be apparent that it relied heavily on outside sources for donations. In fact, a large part of the collection came to the Repository in the form of donations, which of course came from the members with the money to afford them. These particular members tended to be from the upper echelons of society, and, as Hooper-Greenhill points out they were subjected to far less rigorous academic strictures for membership than members that came from lower classes. At any rate, the items tended not to express the ideals of the Society. Instead, these donated items expressed the needs of the donor and not the Repository's collection policy. Unfortunately, the items took the form of the rare from exotic places which strongly inhibited its functioning as it was meant to for the Royal Society. However, everything was classified appropriately (Hooper-Greenhill 1992, 160-61).

By the end of the seventeenth century, the members of the Royal Society had turned their interests elsewhere and the collection became a burden. The understanding of language as syntactical instead of lexical, or representative of the mind and not of things, had arrived (Hooper-Greenhill 1992, 157).

Why is the classical episteme of interest to modern day museums? Chiefly because collection strategies are concerned with filling in the gaps in the collection or finishing the collection. This viewpoint echoes the classical thought that knowledge can be completely charted and then placed in the appropriate position on a classificatory

table. This view in turn leads to the curator or specialist being the final authority for what the object means and how it should be interpreted by the people who visit the museum (Hooper-Greenhill 1992, 165-166). This process also shows, though, how a new knowledge structure retains, or perhaps incorporates, remnants of past understanding. Further, an awareness of this process helps to foster an understanding of how we can 'know' in many ways.

The Museum and the Modern Episteme

The modern episteme as evidenced in museums can be shown with such examples as the Louvre, Stellingen, and Skansen. Initially, the Louvre was established from collections accumulated privately by either the aristocracy or fairly prominent citizens. the knowledge structure began to shift, ripple effects occurred that resulted in power shifts. These power shifts show up in museums in the form of public access, since this access controls the populace's view of those in power. Besides access, the nature of the organization is also of importance because meanings and relationships are established by the organizational or knowledge structure. This structure can be made to support power or to undermine it by how the person's image is impacted by the message.

"Collections were gathered together, filtered, redispersed, and reorganized. . . . the spaces and things belonging to the king, the aristocracy, and the church were appropriated and transformed, at first in France and later across Europe," (Hooper-Greenhill 1992, 167). The French Revolution was the lit fuse that led to the remarkable transformation of museums since that time. This episode in world history also marked the passing of the hierarchic and inegalitarian type of society and "at the same time the

end of the old way of imagining the world as a fixed order ruled by a theological-political logic." (Hooper-Greenhill 1992, 167)

"Museums have always had to modify how they worked, and what they did, according to the context, the plays of power, and the social, economic, and political imperatives that surrounded them." (Hooper-Greenhill 1992, 1) Thus, a major change in the purpose and function of museums becomes apparent. The war, republicanism, and anticlericalism that revolutionized France set the stage for a museum type with two disparate roles in society. One role consisted of being an 'elite temple of the arts' that served to reshape the aristocracy's objects into symbols of power for the new government. The second role for the new museum was to serve as a tool for education, specifically democratic education (Hooper-Greenhill 1992, 171). In accordance with these roles, objects were "Material things, . . . deployed in the same way as other strategic commodities," (Hooper-Greenhill 1992, 167).

The Louvre and Dominique Vivant Denon

The political climate of France and its leaders at this time was "intoxicated by visions of the spread throughout Europe of liberty, equality, and fraternity," such that "they decided that great works of art belonged to all the French people and should be placed in the museum for democratic enlightenment and inspiration," (Alexander 1983, 88). With Napoleon Bonaparte's victories throughout the European continent and the attitude stated above, France, and Paris in particular, experienced a great influx of artworks that were either confiscated or asked for as war reparations by Napoleon's commissioners. When told of the outrage these confiscations roused in some circles, one

commissioner with Napoleon's army replied that "These masterpieces had been sullied over long by the aspect of servitude: it is in the bosom of free folk that the works of celebrated men should remain; the tears of slaves are unworthy of their glory (Alexander 1983, 89).

Museums, and the presentation of objects in them, are strongly affected by the power structure of local or national politics. This is perhaps now where better exemplified than with Napoleon Bonaparte and the Louvre. "Napoleon had little if any appreciation of art, but he considered the museum an important symbol of national glory that would bring attention and splendor to his reign," (Alexander 1983, 90). In order to add to the nation's glory without showing his own ignorance of art, Napoleon took with him on campaigns a team of experts who would select paintings, manuscripts, sculpture, and even zoo specimens for France. This team also was responsible for ensuring that all the necessary paperwork for the transfer of ownership was in order and that any items that needed to be included in treaties and truces were in actuality listed and were the correct items (Alexander 1983, 89).

With the rapidity with which items were coming into the Louvre, Dominique Vivant Denon, director general of the Musée Central, had to make decisions on what items would be displayed and what would be placed in storage. This procedure led to new curatorial practices of inclusion and exclusion (Hooper-Greenhill 1992, 179). Prior to Denon's process everything would have been displayed. His dilemma was somewhat eased as time passed because regional museums were established in other parts of France, as well as those countries then under French control (Alexander 1983, 92).

Denon's influence was great when he presided over the Louvre. He was at the hub of the collecting sphere that the French Revolution and the subsequent Napoleonic wars had created by displacing religious establishments and aristocrats. However, his influence could be considered just as great when many of the looted artworks were repatriated. Alexander writes:

> Denon's museum showed what constituted great art and demonstrated ways in which it could be exhibited to inspire and inform not only aspiring artists and members of the court circle, but also common people. Thus, the Pope and the princes who reclaimed their art treasures after Waterloo looked at them with new eyes, determined to show them in better order, and to open them to both artists and the public. Denon's tasteful arrangements by schools and then, chronologically, by individual artists were generally accepted, as were his practices of conservation and careful record-keeping (Alexander 1983, 107)

The Stellingen and Carl Hagenbeck

The Stellingen Tierpark was started by Carl Hagenbeck. Originally, Hagenbeck had been an animal dealer supplying exotic creatures to menageries in Europe and the United States. While he continued in the trade for most of his life, his passion was for understanding the animals passing through his hands. He gradually accumulated his own stock. Interestingly, Hagenbeck tried to understand how the animals adjusted to captivity, which would further his understanding of them as creatures (Alexander 1983, 318).

Menageries of this period kept animals in cages with little or no room to wander and no chance at socialization. Hagenbeck changed this practice with his innovative techniques. His primary purpose was to teach people that animals should be cherished and not destroyed indiscriminately (Alexander 1983, 319). It was this desire that would eventually lead to his zoo.

In 1907, the Tierpark at Stellingen was opened. Hagenbeck had used all his expertise, garnered from years of work with exotic animals, to create a new type of zoo. He understood both the original habitat and habits of his creatures, and he also understood how they acclimatized and were treated under contemporary practices of the day. Thus, he created an environment in which they could roam and play - the moated zoo (Alexander 1983, 323). Hagenbeck himself stated, "My whole aim is to erect a zoological garden in a natural manner. I shall place my animals in surroundings as much like their natural haunts as possible. . . .I felt sure, too, that zoological gardens of the future will be erected on this plan," (Alexander 1983, 324).

As Alexander points out, moats and the use of them in zoos:

> revolutionized the principles on which zoo exhibits were organized. Previously, systematic displays housed similar animals in the same ornate buildings - for example, lions, tigers, leopards, panthers and other carnivores in separate cages in the Lion House, ... with the moat, however, most zoos began to use a geographic arrangement, ... The moated system also allowed predators and prey seemingly to live together, and it was thrilling (and yet reassuring) for visitors to observe a pride of lions come to attention ready to spring when an eland or a zebra ran by on the other side of a moat. . . . a dramatic display that could be grasped at a glance and that brought a sense of unity and naturalness to the exhibition of many individual specimens (Alexander 1983, 328).

The advent of the Stellingen illustrates perfectly the change from the classical to the modern episteme. The classical knowledge structure insisted upon having the same types all grouped together, and thus, all carnivores were grouped together in one section of cages. The modern episteme insisted upon understanding how things fit together and the holistic nature of how specimens fit into their environment. Thus, the needed change from cages and bars to moated sections with geographic sections. This example also showed how a change in technology, or in the use of a piece of technology, impacted on

how knowledge was presented. The adaptation of the moat to the zoo enabled an entirely new organization of information and thus, a new experience for the visitor.

The Museum Island and Wilhelm Bode

Wilhelm Bode became general director of the Berlin museums in 1905. He had worked extensively with art museums in Berlin singe 1890 and had met and discussed the history of the Museum Island with Gustav Friedrich Waagen, the first director. Thus, he inherited art museums that had begun to gain glory with the decline of Napoleon. Reparations from France provided money for many German endeavors.

> The general attitude towards art in Germany was that it should
>
> help to educate people; it should also give . . . the possibility of lifting themselves up to ideals. . . . The cultivation of the ideal is, moreover, the greatest work of civilization; if we wish to be and remain and remain an example for other countries, the entire nation must co-operate. If culture is going to fulfill its task, it must penetrate into the deepest layers of the people (Alexander 1983, 209).

In this statement can be seen the tendency towards using museums to create and/or maintain nationalism.

In regard to the objects themselves, Bode was one of the few who looked beyond the fiscal and nationalistic aspects of the artworks. It was said that he though to art forms from different cultures and nations as "historical and understandable dialects of a universal human speech," (Alexander 1983, 217). Thus, art could communicate across intangible boundaries.

Wilhelm Bode was responsible for other innovations in museums. Unlike at other museums, like the Louvre, Bode would sought paintings as much as space permitted. He also thought that the works should be housed in rooms that replicated the original settings

as much as possible or known. He also held to the opinion that museums should not display only the works of art that had achieved 'masterpiece' status from the aficionados. He felt that a mix of masterpieces and lesser works was better because, "if the visitor has to look around, as he does now, and decide for himself what appears good to him, he will be much more likely to find his way to pleasure and understanding than if people dictate to him what he is to see in advance" (Alexander 1983, 219). This statement hints at an unconscious and intuitive grasp of how the individual's image functions as a filter. Thus, different objects would communicate more effectively with one type of person than another.

The Deutsches Museum and Oskar von Miller

The founder of Germany's Museum of Science and Technology was an electrical engineer named Oskar von Miller. As a young man, Miller visited the two leading science and technology museums of the day, the Conservatoire National des Arts et Metiers in Paris and the Patent Museum in London. These visits influenced his later decision to establish a similar museum in Germany (Alexander 1983, 346).

Miller's dream began to take shape in 1903, when he presented his plan for a German Museum of Outstanding Achievements in Natural Science and Technology to key representatives of the German nation. The purpose of the museum would be to illustrate the growth of science and technology and to show the affect of this growth on human society. The museum was to be for all Germans and would be supported by such organizations as local and national governments, industry, and universities (Alexander 1983, 350).

The new museum contained items dealing with a variety of topics like geology, metallurgy, hydraulic motors, geodesy, optics, acoustics, photography, and horology. Further, Miller's museum contained many items that could be operated by turning a crank or pushing a button (Alexander 1983, 351). Miller had additional innovations for his museum that included trained interpreters and culling the collections so that they did not grow beyond the museum's ability to exhibit and care for them (Alexander 1983, 352).

Miller wanted his museum to meet the educational needs of the scientist and engineer, but even more, he wanted it to serve the general public, specifically the children. He wanted a museum that would make science understandable and show how technology harnessed the energy and matter of science. In keeping with that purpose, exhibits were designed to explain concepts at a very basic level while incorporating all the excitement of a fair (Alexander 1983, 353).

Because of the innovations he concocted, Miller is credited with changing "fundamentally the attitude of the general public towards museums from looking at them as institutions remote, incomprehensible, even comatose, to regarding them as places that are living, stimulating and close to 'men's businesses and bosoms,' " (Alexander 1983, 356).

In modern times the Deutsches Museum has been criticized as being overly traditional and concerned with engineers and scientists. Critics state that the museum's problem is an inability to imbue itself with a sense of genuine humanity. In response to that statement, Alexander wrote, "It makes us realize, however, that no matter how well Oskar von Miller understood the social milieu of *his* day, conditions have changed since then," (Alexander 1983, 363). This statement illustrates that even within a single

episteme there are ebbs and flows that slowly and steadily erode and deposit the ideas that will eventually yield a new episteme.

The Open Air Museum and Artur Hazelius

Artur Immanuel Hazelius began to collect items for the Nordic Museum in 1872. His purpose in collecting was to preserve and show Swedish traditional life before it disappeared as a result of the Industrial Revolution. With that purpose in mind, he and his wife, Sofi Elisabet, began to acquire traditional costumes, furnishings, tools, dances, music, and sayings. Hazelius was attempting to preserve and study the day-to-day life of the entire spectrum of Swedish society. He had hopes that the study of these types of traditional objects and activities would generate a sound patriotism that was tolerant and humanistic rather than frenetically emotional (Alexander 1983, 243).

Once Hazelius found quarters for his collections, he set about arranging them for exhibit. He adapted the period room, habitat setting of natural history museums, and waxwork figures to his needs by dressing wax figures in traditional costumes surrounded by the appropriate furniture and household implements (Alexander 1983, 245).

Gradually, the museum outgrew its quarters and construction was begun on a new building in the 1880s. During this period, Hazelius continues with his field studies. It seemed a natural step to begin purchasing traditionally constructed buildings that exemplified regional architectural styles. These buildings were then transported to the construction site. Thus, a new type of museum was begun that would serve as

> a vehicle that would allow him to present not only aged buildings, settings, and furnishings, but also costumed guides, household crafts, and folk music and dance. He came to regard both indoor and outdoor sections as necessary components of a folk museum, though his chief interest shifted gradually to the

> open-air part. Still, Nordiska Museet would provide proper processing, storage, and conservation of objects, broad service to scholars, and scientific research and publication, while Skansen stressed popular education , with much reliance on sensory perception - sight, sound, smell, touch, and the kinetic or muscle sense - and would allow visitors to glimpse the past and be pleasantly entertained while doing so (Alexander 1983, 249).

Adding further to this experience was the existence of a zoo at the museum. domesticated animals ambled about the premises and provided realism to the farmsteads depicted. However, wild animals, like elk, wolves, bears, and other examples of the country's fauna, were presented in appropriate enclosures (Alexander 1983, 252).

Skansen, with its festive demonstrations of traditional holidays and its down to earth exhibits, was exactly what was needed to bring the average person to the museum. In fact, Alexander described Skansen as a museum with

> exhibitions that the common person could understand and enjoy, with none of the forbidding elitism and hands-off attitude associated with so many museums. Here were presented serious concepts of education and patriotism, combined with recreation and the air of the picnic (Alexander 1983, 253).

Essentially, Hazelius created a social environment that was inviting for the average person rather than intimidating. This social environment allowed for more effective communication and provided a better depiction of the image held by the community.

The Community Museum and John Cotton Dana

John Cotton Dana was a librarian with innovative ideas about how institutions should serve the local communities. His first point was that an institution serves its local community first, the nation second. This idea was a definite change from the earlier museums of the modern episteme which focused on bringing glory to the nation.

Dana applied many of the concepts he had broached in his library work to the function of a museum. He stated repeatedly that museums should not focus on acquisition but, instead, should closely examine the practices of exhibition, interpretation and community service. If these practices were being done effectively then all classes and cultures in the community would be civic-minded and patriotic (Alexander 1983, 390-91).

The community could be involved in the museum in a number of ways. Dana, with his work with the Newark Museum, advocated working closely with libraries, involving local collectors, and lending objects and instructors to schools. Above all else, though, a museum needed to advertise its presence by any and all means necessary to keep it in the public eye. Dana kept the public aware of his library and museum by renting billboards, putting advertisements in local newspapers, and putting out a bulletin for the library and museum (Alexander 1983, 392).

With these concepts in mind, Dana started the Newark Museum in 19909. In actuality, he had been creating exhibits since 1903, when he had put together the *Exhibition of Paintings Lent by Newark Citizens*. Then, in 1904, Dana convinced a local physician to donate (to the library) his natural science collection consisting of an herbarium, skeletons, minerals, and fossils. Dana continued to use space in his library as a museum area for exhibits up until a new building was built in 1926 (Alexander 1983, 390, 399).

Modern Museums and Communication

Communication in museums is affected by a variety of factors. One of these

factors is the distribution of power.

> Power relations . . . are skewed towards . . . who makes decisions in relation to space, time, and visibility; in other words as to what may be viewed, how it should be seen, and when this is possible. For the public, interaction with the collections other than at the level of looking at fully completed and immaculately presented displays is generally severely curtailed, and because of this, definitions of the meanings of the collections are restricted to the private sphere of the museum worker (Hooper-Greenhill 1992, 7)

In view of this statement, it can be seen that objects within museums often do not communicate as effectively as possible because communication rests solely in the hands of museum staff. Further, the manner of communication is not always the most conducive one for two-way communication.

In 1939, T. R. Adams wrote, "Before the research activities of museums receive their proper share of attention as instruments of popular learning, museum management must discover the means of interpreting the work of its scholars to a practical-minded public," (Adam 1939, 46). He also continued on to note that a museum, to communicate effectively, could not proceed along strict educational precedents; they must be willing to bend the "rules" somewhat. In other words, a museum must have an understanding of those it wishes to educate and how that aim is best achieved at a level that will benefit the broadest spectrum of the community without losing intellectual coherence. In order to serve this function, staff must become part of the community (Chadwick 1980, 82)

The Greeks wrote of Athena springing forth full-grown from the head of Zeus. She was revered as a goddess, the goddess of wisdom in fact. How and why she was created were not of import, and she was not considered a figment of anyone's imagination. This unquestioning acceptance illustrates how pervasive knowledge structures can shape our understanding of our world. The shaping of modern views relies

heavily on our present episteme, and this process can be seen in most museum goers. Since modern museums are for the public and their chief role is interpretive, museums serve as an intrinsic link in public learning. This linkage means that museums become the primary instrument for creating an environment conducive for public learning.

> There is little idea that material things can be understood in a multitude of different ways, that many meanings can be read from things, and that this meaning can be manipulated as required. Although we are familiar with the way in which advertisements, for example, select and manipulate images of material objects in relation to their associative and relational potentials, it is not understood that the ways in which museums 'manipulate' material things also set up relationships and associations, and in fact create identities (Hooper-Greenhill 1992, 6)

By questioning and allowing questions from the community, a contemporary museum provides empowerment, identity, and stimulation to those it serves (Weil 1990, , :53). This stimulation is what opens and maintains lines of communication. The museum can and traditionally has provided aids to communication or interpretation by means of docents, brochures, labels, lectures, exhibitions, publications and, as technology has increased options, video and audio (Alexander 1979, 196-205). In the realm of the virtual museum, earlier defined as an online resource for digitally recorded media, communication takes place in a rapidly changing media. However, email, text, hyperlinks, and new A/V technology allows for the same possible level of communication with patrons.

One author noted the possibilities that the internet brought to museums by writing:

> The characteristics of digital technology open up new possibilities for museums. These relate to the audiences we can reach, and how we can relate to them; to the sort of content we can provide and how it relates to what we offer now; to the connections we can now make; and to how our audience can find and retrieve what interests them (Keene 1998, 10).

The author goes on to note that the museums can continue to reach either very broad or narrow audience groups via the internet, and that the communication can be two-way because of email and the ability to record information exchanges for later use (Keene 1998, 11).

Dana understood that to communicate requires us to understand the views and "image" of who we are trying to communicate with and what social context shapes their world. A museum committed to community involvement first has to understand the variety within its community and second, how to assert commonality and question disparity. The next step in communicating effectively is understanding how the museum is perceived by various groups within the community. Finally, museum professionals need to understand that the museum communicates at both a personal, individualized level, such as a docent to a visitor, and at an impersonal, mass level, such as an exhibition or video to the general public (Hooper-Greenhill 1995, 6). However, as Boulding and Hooper-Greenhill both point out, people are not passive receptors of every message broadcast. People "expose themselves to, understand and remember communications selectively according to prior dispositions," (Hooper-Greenhill 1995, 7). As a result of this selectivity, mass media or communication has become a tool for "ideological reproduction in the maintenance of social, economic and cultural power relations," (Hooper-Greenhill 1995, 7), or in other words, people will interpret the messages of mass communication in a manner consistent with their image..

The power of museums to shape the image of society or individuals through unconscious or conscious advocacy of specific ideologies is only as strong as the

institution's ability to communicate effectively. Part of communicating effectively is making individuals and communities examine their own viewpoints or "image" critically. Thus, the communication process actually extends beyond the museum into the community and either reasserts or helps recreate the community's image. In turn this opportunity for change can provide a glimpse of the underlying knowledge structure and can provide the possibility of restructuring the episteme.

At the very center of communication are symbols and our use of words to convey which symbol and concept we are discussing. Symbols are what in actuality allows comprehension of an object's function or a person's thoughts. However, with language, we can convey an intricacy of thought that allows issues to be probed and discussed by individuals and communities. This process of communication is the basis of knowledge structures that transcends presentation in a virtual or physical format. Presentation can take the form of something physical or something ephemeral, something in a physical museum or something in a virtual museum. After all, it is the context of ideas that imbues an object with meaning; it is the symbolism of the object that provides meaning. While the physicality of objects is of importance, the ability to interact with touch, smell, and taste is traditionally restricted unless the museum is a science or children's museum.

In the end, the object causes thought and engenders communication within ourselves and with others. Thus, our abilities to use words to capture and express what we think and feel enables the communication between museum and patrons. In turn, that communication reshapes or reinforces the images people and communities hold. This communication process allows the underlying knowledge structure to be seen and potentially adapted to newer communication methods like the virtual museum.

What are Museums?

The beginning of this paper posed the issues of why museums are created, the contexts which generate and support them, how knowledge shapes presentation, and how presentation can limit avenues of knowing. Works were examined based on the information provided about knowledge structures, museum history, and communication.

The first question that should be answered is what is a museum? From examining the history, it can be stated that on a physical level, it is a collection of objects. What it is at a virtual level is collection of digital "objects". On a cultural level, the museum in a general is an instrument of and for change, communication, and interpretation of knowledge structures.

Why should the history of museums be of interest? Hooper-Greenhill points out that the

> failure to analyze, understand, and articulate the practices of the present, has some serious consequences. . . . This is particularly acute in relation to museums, as there is an extreme diversity of forms, with varying funding and administrative arrangements, varying 'collections', and varying scales of operation. Each of these different material manifestations can be related to a different set of constraints and possibilities (Hooper-Greenhill 1992, 8).

An examination of the history of museums provides us with insight into the types of power shifts and knowledge structures that allowed the growth of certain types of museums, how those museums in turn portrayed knowledge structures, and how the different types of museums influenced new innovations in other museums. Initially, the Renaissance episteme arose and collections developed that focused the eye on the power accumulated by people like the Medici. Next, the classical episteme came into being and herbaria, zoological collections, and botanical gardens focused the knowledge structure towards a physical, visually-based ordering of information. These collections were

slightly more accessible in that they were not restricted solely to men in power. Men of moderate means and appropriate academic credentials could gain admittance to such collections as the Repository of the Royal Society of London. Finally, the modern episteme gave rise to a plethora of public museums that ranged from Stellingen to Skansen to the Deutsches museums and provided access for the majority of people, limited only by means to travel geographically.

The public museum as a cultural institution arose as the modern episteme was coming into its own. The process of creating public museums caused the gradual evolution of the institution into a more interactive format with demonstrations, docents, and discovery rooms. The concept of community service became an inherent goal of the overwhelming majority of museums.

Museums and Their Objects

The issues surrounding communication, interpretation, power, and change all impact on how the knowledge structure has influenced the portrayal of objects. These influences can be seen in the museum histories from the Louvre onward. The Louvre, being the first truly public museum, communicated the glory and power the nation by displaying masterpieces previously held by the defeated aristocracy and countries.

The shift in power affected the knowledge structure within France, illustrated by a reinterpretation of works and their display, first by the school of the artist and then by chronological order. Finally, the fact that this was a public museum reflected a change in who the works and institution was to communicate with and what was to be communicated.

Over time, the focus of the knowledge structure shifted more towards a stabilizing influence as technology caused greater and quicker changes and stress on the social fabric. This shift can be seen in the Stellingen, Skansen, and the Deutsches Museums. Each of these exemplifies an attempt at understanding the consequences of the rapid changes taking place in human society.

At Stellingen, Hagenbeck attempted to establish a sanctuary for animals that would ensure survival and humane treatment. The advent of better firearms had increased the ability to take exotic animals as trophies. This sport, in turn, increased the likelihood of the species demise. The practices of Hagenbeck helped to engender an appreciation of these creatures. This process attempted to balance, enlighten, and slow down the destructive tendencies human technology has on the ecosystem, and changed perceptions of value for the "objects".

At Skansen, the focus was on the representation of Nordic cultures. Hazelius saw how swiftly society was changing because of the Industrial Revolution. His museum attempted to preserve the identity of the cultures and to represent the richness of design in traditional handcrafts. Further, his final method of communication, the open air museum, set the music, dances, houses, and crafts in an arena that was comfortable and approachable for the audience. Thus, he provided an innovative institution that communicated effectively and allowed for change that was balanced by a perspective focused on cultural identity, instead of allowing a homogeneous global identity.

The Deutsches Museum also served as a stabilizing influence. While it presented technology, new and old, it also attempted to place the objects in context by showing how society was affected and how these instruments harnessed the power found in nature.

This tactic tied the objects back to something familiar. Thus, these objects were rendered understandable, "friendly," and, in a sense, less dangerous. This allowed and aided uncontested economic growth and helped to secure a transition in perceptions of technology.

Technology changed even more rapidly during the last several decades of the twentieth century. With that change has come a redefining of who make up a community from a geographically constrained community to an electronically connected community via the internet. This redefinition of community has a direct impact on the web presence of museums. It raises the issue of how to define and direct a museum for a "global" audience. In turn, the question then has to be asked, "what counts as a museum?" (Hooper-Greenhill 1992, 3).

Museums and Their Communities

Dana described the "essentials of museum existence, -- a home, collections properly so called, an income and, most important of all these essentials, such activities as may fairly be supposed to produce beneficial effects on their respective communities," (Dana 1917, 1917, 9). Dana continued his discussion of museums by stating that they should

> fill a definite need and serve a definite purpose in the community. The old-style museums are founded on the assumption, itself a mere product of obedience to precedent, that the presence in a community of rare and expensive objects in fields either of art or science, gives that community not only a certain prestige in the world, but also a certain mental éclat, a certain aspiration, a certain integument of culture, a certain open sesame to the realm of refinement (Dana 1917, 31).

Here Dana implies a need for change in acquisition and presentation so that a community's purpose and needs are foremost. Therefore, what is beneficial for the community? Previously, museums had acquired and presented what wealthy donors provided, which reinforced the prestige of the donors. However, Dana advocated acquiring items the community was already familiar with form use. The museum would interpret and present these items to the largest portion of the community possible and point out the pertinent elements for public learning.

Another issue museums face is what criteria to use in selecting objects for acquisition. Museums like the Louvre had selected the masterpieces to enhance national glory. Bode selected a variety of painting because he felt people would learn more by deciding what art they wanted to learn about. Miller selected objects that visitors could operate and interact with in order to learn. Hazelius presented items people knew about from their day-to-day lives and encouraged communication among the generations in a participatory, fair-like setting that was comfortable for the majority of people. Therefore, we need to pay attention to Weil's question "What should guide our selection of objects the inherent quality of the object or its utility as a stimulus," (Weil 1990, 1990, 55).

If we chose to select objects solely on the inherent quality or rarity then it needs to be kept in mind what Dana wrote about the utility of these types of objects for the community. He wrote:

> We merely hold to the theory that in most cases their immediate utility is vastly over-rated; that their cost is out of proportion to their value; that their managers usually too greatly exalt their acquisitions and forget the entertainment and instructions of those for whom they were professedly acquired; and that their presence, and the dominance of the conventions which go with them, make very difficult the introduction of homelier, more attractive and more useful objects and methods into the museum world (Dana 1917, 14).

By maintaining the traditional approaches to acquisition, we fail to allow the knowledge structure to grow and adapt, which sets the entire process up for a violent changeover. It also shows the museum profession's complacence with the status quo. Complacence should be the last thing a museum should be accused of because of its purpose to evoke questions and challenge the status quo. While the acquisition of rare items should not completely cease to be a viable function of the museum, staff should be aware of whether or not they can present and aid in the interpretation of an item in innovative and thought-provoking ways. If this cannot be done, then the item should probably not be acquired.

The Issues to be Faced

Today we need to follow Hooper-Greenhill's advice when she wrote:

> If present-day museums and galleries can be seen as not the only form in which museums can exist, but merely the form which the play of various powers has permitted to emerge, then shifts in this play of powers can be seen as part of an unceasing, jostling process (Hooper-Greenhill 1992, 8-9).

This process will result in a virtual museum despite opponents to the lack of physicality in the objects, simply because of the usefulness of the internet as a communication tool. This process will also continue to be challenge the "image" of society, community, and ourselves that we currently hold.

"Communities, cultures, civil societies, families, schools all need to be challenged in order to understand what they must do to enhance individual human becoming," (Carr 2000, 1). In keeping with the educational function of museums, interpretation exists to aid people in challenging preconceived ideas. If done properly and responsibly, this is a powerful tool for the museum. If possible the museum should provide opportunities for as many ways of knowing as can be handled. To select one interpretation presumes to

much on the image of the world held by the staff. It is a good idea to keep in mind that "the origin of what we take to be rational, the bearer of truth, is rooted in domination and subjugation, and is constituted by the relationship of forces and powers," (Hooper-Greenhill 1992, 9). Further, the methods of structuring objects are "in fact socially constructed," rather than being the truth that most people would like to assume (Hooper-Greenhill 1992, 5). This assumption, though, shows just how unconscious the adoption of a particular knowledge structure is for most people.

How best can museums function in this time of rapid change? First, it should be kept in mind that museums can be redefined at will by the presentation of the knowledge structure. Second, museums need to collect ideas first and foremost, rather than things (Dana 1917, 35). This concept is what will make virtual museums a valuable tool for the future. Third, keep in mind that teaching is all about learning, and that museums can learn as much from their communities as their communities can learn from them. Museums must first serve as a conduit for engaging society, expressing the needs and the thoughts of the community and individuals. Further, museums must encourage self-exploration within the individual. All of these needs can be achieved through the cooperation of the museum with the community and by the aid the museum provides in finding a common image for the community (Carr 2000, 3).

All of these issues have an impact on the development and use of virtual museums. Even though museums should collect ideas first and foremost, the question of how to redefine the term "object" must be faced. Up until now, an object has described something physical that has "multilayered identities ranging from the conceptual, through the factual, the functional and the structural, to the actual identity," (Hooper-Greenhill

1995, 25). With the internet, however, there is no sense of the physicality of the object. Can "object" be redefined to mean a representation of an ephemeral thing or a concept composed of bits and bytes that can only be sensed by the eyes or ears? Is this a feasible path to take towards redefining museums into a virtual environment, or should the internet be considered at best a communication tool?

Perhaps this issue could be dealt with more effectively if a coherent, inherent, or dominant knowledge structure could be perceived within the context of the internet. At this time, it is merely a conglomeration of haphazard sites with various search engines trying to establish intellectual organization. This organizational process should be understood before any effective virtual museums can be initiated.

Another issue tying back to the redefinition of "object" is how to look at collections. Can there be "true" virtual collections or will those collections merely by representations of physical collections? How can creating a "virtual" collection benefit a community, whether it is a physical or an internet community? Related to these questions are, how should community be defined, and what is the most effective mode of communication for internet-based museums? How is the knowledge structure presenting information, and how fluid is that structure within the internet environment? Also, are people more concerned with the physicality of the object or the meaning of the object? What portion of the meaning might be lost in a virtual environment? Finally, and of most interest, since technology still only caters to the senses of sight and sound, how much does the level of communication with the individual actually change?

The first lesson that can be learned from the earlier public museums is the willingness and ability to adapt to changing knowledge structures. This lesson will be

inherent for surviving as a virtual museum because of the swiftly changing technology and how that technology affects presentation. The second key for a virtual museum is to learn how to best encourage communication and critical thinking skills within the electronic environment. The third step is to make the museum participatory, and this participation would go beyond merely clicking to the next page. Next, the site needs to be informative without being overwhelming. Finally, the museum would need to create a sense of identity or usefulness for and with the communities and individuals using the site.

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